Before the
Federal Communications Commission
Washington, DC 20054

In the matter of	)	
	)	
Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems	)	CC Docket No. 94-102
	)	
Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements; Petition of the National Telecommunications and Information Administration to Amend Part 25 of the Commission's Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band	)	IB Docket No. 99-67

To: The Commission

Comments by the
Washington State Enhanced 911 Program
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The E911 Washington State Enhanced 911 Program welcomes the opportunity to respond to the Commission concerning emerging and yet to be considered telecommunications services on 911, and as a standard Enhanced 911 (E911). We also compliment the Commission for initiating a review of these services and their E911 impacts in a proactive manner. We take this as an indication that the Federal Communications Commission is taking seriously the intent of the Wireless Communications Act of 1999 intent to assure that the customers of telephone service receive the essential benefits of advanced E911 services, regardless of what technology is utilized to process the call.

A. General Criteria

These comments will for the most part be addressed to specific issues. However, they all must be taken in context of the Commissions first question concerning the appropriateness of its basic assumptions on governance over E911 issues.

In analyzing each product or service, the Commission should be absolutely clear that the first three of the criteria, real-time voice service, an expectation of access to 911 dialing, and equal E911 service from competing systems generate an absolute requirement that services meeting these criteria must provide for integration to the E911 systems. When the fourth question asks if integration is technically and operationally feasible it discounts the potential of advanced technology to solve problems. It has the potential of becoming an excuse on the part of developers of systems to simply dodge the first three questions, claiming that technology wouldn't support a solution. E911 is simply to important as a consumer safety feature to adopt an analysis that at its face value permits those who propose employment

of telecommunications technology to simply ignore the need to provide E911 integration within the design of their proposed service. It has been clear for some time that had the providers of CMRS equipment planned from day one that integration to enhanced 911 would be a requirement, the technologies and implementation would be far advanced over the current state. The fact that the Commission required that those receiving frequency allocations provide the capability to dial 911 but without direction on what to do with the call led to public safety demanding integration. The process of moving forward with systems to provide that integration, including the caller's location has seen real world examples of solutions that provide accuracy deemed technically impossible only a short time before their actual implementation. The history also contains examples of carriers who are extremely frustrated by the inability to get product from their suppliers to their customers. A clear expectation that the lack of technological development would be no excuse for non-performance would have driven the necessary technologies to production sooner, and probably within a competitive framework that reduced the overall costs.

It is simply inappropriate to include a technological opt-out for the service and equipment providers. If the developer of a service cannot meet the goal of providing enhanced 911 service, they have the option of limiting the service to customers who would not expect 911 dialing and/or offering the service in a manner that does not compete with traditional voice services. They can simply build their offering in a manner that 911 is not an issue for their customers, and so notify customers both in their advertising and customer service efforts. A significant point in this discussion is that the decision to offer a service as competitive to existing services is not one of technology. It is a marketing decision and the Commission should assume that a new technological communications offering that can be competitively offered will be. Mobile Satellite Service may be competitive with CMRS in Wyoming and not in Washington DC when considered from the marketing view, and therefore would need to provide E911 integration.

The elimination of the fourth analysis criteria also changes the analysis to more forward looking view of what E911 should be as a telecommunications service. To date much of the history of E911 services has been reactionary with the result that the engineering efforts to accommodate the safety needs of the consumer have to a large degree been patches to repair something that was broken. This contrasts with the clear need as articulated in the Hatfield study to support the development of a long term E911 service plan that will accommodate new technologies. Making it clear that any service which qualifies on the three criteria must at implementation be integrated to E911 is a first step in moving E911 from the reactive mode to proactive solutions.

As the Commission examines the comments on each of the technologies it is suggested that they consider options for the implementation of a process that encourages collaboration among the existing and proposed service providers to advance E911 technology to meet the needs of the new services. E911 services are to a large degree engineered and provided as they were when divestiture eliminated a coordinating function

provided by AT&T that assured nationwide integrated E911 service provisioning. The advent of competition in the nation's telecommunications environment has moved us to a new era of consumer choice and options. However, E911 is one of those critical services for which there is not a market driver to assure nationwide coordination and ongoing technical development. Most of the questions asked concerning proposed service integration to E911 would not exist if all providers and their vendors participated in a nationwide effort to assure that systems could be integrated. Therefore, the larger question is how the Commission will move to encourage long term support of E911 systems and system development. Enhanced 911 technological development benefits all carriers and moving it into an area where collaboration is encouraged will help to assure that all customers receive the benefit of access to emergency services by dialing 911.

Of special note is the concern over TTY access to E911 via the various technologies. The American with Disabilities Act is relatively clear that access must be equal. The work done to permit access through CMRS systems would appear to have established a technical foundation for equal availability through other voice services. This should be required. However, to do so ignores a reality that the protocols for TTY communications are very dated. Two way paging, mobile data terminals and wireless text messaging are current technologies which provide far more capabilities. The Commission should undertake a collaborative effort with the Department of Justice, the hearing disabled community and public safety to evaluate the needs of the community and how access to E911. The hearing disabled community deserves improved technologies that can be provided by utilizing a more advanced communications protocols. The investigation of how to proceed toward a new standards should be promoted by the Commission as a distinct action separate from the implementation of services in general.

B. Individual Voice Services

When considering individual voice services in general if the three evaluation criteria lead to a conclusion that E911 integration should be provided it should be a known design criteria for the service provider. A summary of the conclusions for E911 requirements using the three applicable criteria is attached as Appendix A.

B.1. Mobile Satellite Services

As previously noted, Mobile Satellite Services need to integrate to E911 may well be based on a marketing decision on how the services are offered. It is very conceivable that in some markets MSS will be competitive with CMRS, and therefore E911 integration should be planned.

B.1. i Call Centers

A decision by a MSS provider to offer emergency service access via a call center should be treated in a similar manner to the services offered by a Telematics provider to automobile owners. The call center can

handle the call including determining the callers location and process the information to the appropriate Public Safety Answering Point (PSAP). The customer should not access the call center by dialing 911. The call center should be viewed as an additional customer service and accessed by dialing an appropriated number.

The question of call centers does raise the issue of how these service providers transfer calls to the appropriate PSAP. The Telematics industry has developed a capability to accurately locate callers and to recognize the correct PSAP for call transfer. However, the transfer is typically done on 10-digit phone numbers, not into the E911 system. This generates delays and makes further transfer of the call cumbersome when compared with 911 calls. If MSS providers are to use call centers the capability to get the call into the appropriate E911 system will be critical to the success of using the call centers for emergency call management. The Commission should recognize this need for the capability to transfer calls from call centers or Telematics providers as a priority enhancement to E911 systems and assure that the necessary development work proceeds without delay.

B.1.ii Enhanced 911

If it is not appropriate to include E911 for MSS at this time, what will be the correct time? The answer must be now as a design criteria. The inclusion of GPS capabilities in small hand held CMRS phones leads the way for similar technology to be employed by the MSS carriers. They will encounter some of the same issues such as time to determine position that CMRS has been addressing so any delay in making the requirement known will only serve to preclude consideration of the MSS needs in the standards development ongoing for CMRS E911 integration.

B.1.ii.a Network Design and LEC Interconnection

As noted above, some of the technological development necessary to route MSS calls is being undertaken for other purposes. Including MSS in the requirements will assure that their needs will be addressed. The fragmented nature of the existing E911 infrastructure does cause problems with initial MSS E911 call routing because of the large area a caller can be immediately located within. If the nation's E911 systems were integrated this would not be a problem since the call could be routed to a regional PSAP for call management until the exact location became available or the national system could move the call to the correct PSAP if the caller's location was immediately available. This issue points out the need to include MSS in the E911 requirements and the necessity for the Commission to take a strong leadership role in forwarding nationwide E911 system development.

B.1.ii.b Provision of Automatic Number Identification

To the degree that the MSS carrier provides phone numbers to subscribers that number should be available for transmission to the E911 network. Again the problem seems to be the fragmentation of the E911 network which is an issue that demands a solution for a number technological developments.

B.1.ii.c Provision of Automatic Location Information

The success of CMRS providers in generating accurate caller location has paved the way for similar achievements by the MSS industry. The MSS standards for location accuracy should be the same as those for CMRS, however it may not be practical to implement them in a similar manner. The initial call routing for a MSS 911 call may need to be to a regional PSAP recognizing the need to transfer the call again once the actual location has been determined. However, some tests of GPS location capability where the GPS location function is in continuous operation have resulted in location information timed to permit accurate call routing. Giving a location for a MSS call the would be the equivalent of Phase I for the CMRS world has little if any value. The answer that should be pursued for MSS is a rapid location of the caller with automatic call routing based on the caller's location.

B.1.ii.d Implementation Schedules

In recognition of the network development necessary to implement E911 for MSS a pragmatic schedule is appropriate. But that schedule should clearly be tied to the carriers providing the service immediately if marketing efforts are made to compete directly with CMRS carriers. Care must be taken to assure that any delay in the implementation schedule for MSS is not taken as permission to pause in the vigorous efforts to implement E911 service. There are multiple reasons to proceed with the development of a nationwide E911 network and the timing requirements for MSS to be fully implemented should anticipate that network implementation rather than begin when the network is available. A clear understanding that E911 integration is a requirement will permit the inclusion of technology in MSS consumer equipment at an earlier date permitting normal set replacement to get location enabled sets into the field sooner.

B .1.ii.e Carriers and Services Required to Offer E911

As we have noted previously, local statutes that require E911 service typically make little distinction about technology used to process the call. That builds an expectation of service level on the part of the customer. If MSS are required to provide 911 dialing as CMRS carriers are, then it must be E911 with all the appropriate capabilities. If not, then the MSS carriers should so note in their consumer information materials and should market in a manner that clearly makes the distinction that the service is not competitive to the CMRS providers who do provide E911 service.

B.1.iii International Issues

The number to dial for emergency assistance in the United States is 911. As is noted that is not universal in the world and carriers should be permitted to allow customers to dial what code that customer would expect to dial in their primary country of service. This appears to be technologically feasible, and once dialed, the code makes little difference to further call processing. The Commission should take steps to assure that the standards bodies developing 911 protocols do take into account the various dialing plans for countries and implement a standard that permits international phone numbers to be processed through the E911 systems. The current 10-digit limit in most of the systems precludes system management of international numbers whether from MSS customers or CMRS international roamers.

B.1.v Other Issues

The difficulty of handling calls from non-initialized MSS phones would appear to preclude a requirement that the carriers provide E911 call management for these sets. The Commission has not required 911 dialing for MSS carriers as was done for CMRS precluding any expectation that MSS phones of any type, including non-initialized would have 911 dialing. There is also no parallel in analog roaming capability which supports the CMRS non-initialized 911 concept. In total, it would appear that the non-initialized 911 requirement for CMRS has no applicability to MSS.

B.2 Telematics Service

Telematics services typically provide two types of service, concierge and emergency. Both are handled by call centers that are generally capable of triaging emergency calls and passing those calls onward to the appropriate PSAP. They do this under agreements with CMRS carriers for capacity, and they often utilize phone systems that also permit normally dialed phone calls on the CMRS carriers system from the Telematics device.

Theirs is a customer service somewhat like remotely monitored alarms where the customer chooses to pay for a service that provides certain benefits. To the degree that this is a customer choice to contract with the Telematics provider for some value added service with a clear expectation that activating the emergency feature will establish contact with the Telematics provider, not public emergency services this would appear to be a service that is outside the clear jurisdiction of the Commission. Telematics concierge and emergency calling functions only utilize the CMRS network to permit the placement of a call to a predefined location where the Telematics provider may differentiate between the types of call at their discretion.

However, when the Telematics device under control of the consumer also permits 911 dialing that is an E911 service which has already been considered in the Commission's E911 CMRS rules. When the

customer dials 911 the CMRS provider should not distinguish that call from any other 911 dialed call, with the same call management. In this case the Telematics provider is nothing more than a reseller of services.

3. Multi-Line Telephone Systems

Washington State's MLTS legislation was aimed at requiring MLTS transmission of location identifying information in situations where there is an expectation on the part of a telecommunications customer that E911 services will be delivered, or there is a clear public safety issue. Schools, residential facilities and tenant services business locations are required to provide accurate location when 911 is dialed from their MLTS. In addition the State E911 Program Office is encouraged to lend technical assistance to other MLTS customers in connecting their systems to E911. The program is successful with many major employers and large businesses providing integration. There have been problems, some of which are noted in the following discussion.

Multi-Line Telephone Systems are utilized in multiple settings and there is often little commonality between the emergency location needs of these settings. The same telephone system can be used in a school, an apartment complex, and a manufacturing facility. In each case the purchaser of the system should be able to configure the system as necessary to meet the E911 location requirements appropriate to that setting. This capability should be inherent in the operating capabilities of the system when manufactured. That capability can be accomplished in VoIP systems as well as traditional circuit switched MLTS. The details of the implementation should be left to the purchaser and the public safety authorities who must respond to that purchaser's facilities. Experience in Washington State has demonstrated a high willingness of business, from retail to manufacturing, to want an effective E911 emergency service capability from their MLTS. The driving force behind this desire may be a concern for employee welfare, or a concern over effective response to terrorist responses, or a desire to coordinate in-house capabilities with public safety responders. But without certain system capabilities the purchaser cannot meet these needs. The Commission does not regulate how a MLTS can be used. But the Commission can assure that all sold have a basic set of capabilities that support E911 interconnection as part of its consumer protection obligation. This is particularly important given the secondary market for MLTS which may see a system installed as used equipment in an a setting where E911 is extremely important in comparison to the previous use.

Additionally the purchaser should expect that the Local Exchange Carrier providing service to the MLTS will permit taking advantage of cost effective interfaces to the PSTN that would permit the transmission of the necessary data to the E911 system. In some cases LECs have provided only one interface type that required additional service acquisition by the MLTS owner when the existing high capacity interface was fully capable of serving the E911 function. In addition some competitive LECs have willingly taken all the business services for MLTS customers while leaving the E911 interface for the RBOC to manage. When

the customer's phone numbers have been ported to the new carrier this makes it extremely difficult to manage the essential E911 database records. The carriers have similar technical capability, but some simply do not accept E911 integration as a service obligation for MLTS customers. The Commission should make it clear that the obligation it has placed on carriers to provide E911 services includes a full compliment of E911 services for MLTS customers.

The NENA recommendations for legislation concerning the MLTS interfaces to E911 mirror closely those implemented in Washington State which have proven to be very effective. Some of the interface requirements suggested by NENA have been addressed by the Washington Utilities and Transportation Commission, also with a positive result. The original consensus agreement on this matter would have resulted in a less than adequate solution because it did not recognize the need to implement solutions that fit the circumstances of the use of the MLTS. Utilizing an arbitrary figure like 40,000 square feet totally ignores those applications where the size of a response area may be much larger, while driving toward a manufacturing standard that would not meet the need of businesses who desire to locate every phone. Technology and events have made this consent proposal not relevant. The Commission should move to implement the NENA MLTS recommendations as rapidly as possible. These were developed by a broad based work group with a singular objective of building a framework that would permit manufacturers, purchasers and suppliers of service to MLTS the necessary options to meet E911 location goals for all situations. MLTS interface to E911 is often a primary concern of schools and business as they plan response to events like Columbine High School, terrorism attacks, or personal emergency management.

The Commission should also closely examine its direction to NECA for assistance to schools to acquire phone systems under the e-rate program to assure that any system purchased under this program provide E911 connectivity. The current non-inclusion of E911 interfaces in e-rate permitted expenditures has left schools in a position to fund that integration at the local level, unless the manufacturer of the system happens to include it in the base system capabilities.

4. Resold Cellular and PCS Service

To the consumer resold service cannot be differentiated from service purchased directly from the carrier. The E911 functionality should be that offered by the carrier without regard to how the service is acquired. If there are issues related to the E911 provisioning the carrier should be held responsible for solving them. The carrier determines how the reseller provisioning of service is accomplished and is the driver of contract provisions that dictate how resellers operate. The carrier should simply recognize that E911 is their obligation regardless of how they decide to market service. Reselling is a marketing concept which has no impact on E911 service delivery requirements.

5. Pre-Paid Calling

Pre-paid calling plans are nothing other than a billing arrangement used to recover carrier costs prior to service being offered. As such, the consumer should be offered the same E911 service that post-utilization billed customers receive. There are some nuances such as tax treatment that may be different for pre-paid, but those do not impact the need for E911 service. The argument can be made that a greater percentage of the customers who purchase pre-paid plans do so for personal safety, but there has been little documentation that these customers deserve greater E911 consideration on the part of the carrier. Billing arrangements are not a discussion item in considering the value and need to provide E911 service.

6. Disposable Phones

This to some degree is a definition of disposable. Most of the wireless phones sold have a limited lifespan when compared to the traditional wireline phone. Disposable phones currently proposed are only a reduction in planned functional time. It is also likely that some of these phones will come with provisions to refill the service extending their useful life to be equal to the average pre-paid phone and many post utilization phones. The consumer will see little difference in functions and will expect equal E911 service. Carriers have choices of which phones to permit on their network, clearly putting the carrier in the position to assure that these phones have the full compliment of E911 services. One of the primary issues mentioned is the potential lack of consumer information. For E911 purposes the information necessary to process 911 calls and provide call back is minimal. The carrier federal obligation to provide certain information for associated with law enforcement activities may ultimately result in collection of customer data.

7. Automated Maritime Telecommunications Systems

To the degree that direct dialing is permitted to access the PSTN these systems provide telephone services and should be expected to provide an appropriate suite of information should 911 be dialed. Since the events of September 11th the United States Coast Guard has been working closely with local law enforcement and E911 systems to share information and integrate operations. Today many boaters will use their wireless phone to call 911 when in distress as well as utilizing their AMTS or marine radio. In some locations USCG dispatch facilities are being connected to the local E911 system. When AMPS dial 911 they should provide the same E911 service as a phone connected to a CMRS carrier. The technologies being implemented for CMRS carriers to integrate to E911 would seem to provide a foundation for the AMTS integration.

8. Emerging Services and Devices

A strong stand by the Commission that those planning to offer voice services that compete with existing systems will need to engineer their systems to provide E911 service is the single answer to this issue. If an emerging service anticipates that it will permit customers to dial 911, or even if it could be anticipated that

consumers will expect to be able to dial 911, those planning the service should anticipate that their design will need to accommodate E911 functionality. It makes no difference how the signal is managed nor how the communication path is operated, if it meets the criteria, it should be built with the understanding that it will be required to interconnect to E911 and provide functionality equal to that required for services with which it competes.

Voice over Internet Protocol (VoIP) is an excellent case example. Where VoIP is used as a tool for connecting MLTS it competes with carrier provided private lines, but there is no expectation of 911 dialing capability. Manufacturers that have implemented VoIP based MLTS have understood the requirement for E911 interconnectivity and provided that capability in their systems. VoIP services sold to compete directly with traditional voice systems provide what appears to the user as telephone must be considered as requiring E911 capabilities equal to the systems it is in competition with. This includes those services providing the equivalent of a switched circuit in traditional voice service and those services that utilize VoIP technology to connect MLTS to the network in a manner that permits voice calls. In the later case the VoIP provider should also provide capabilities that permit MLTS station identification to the E911 system. Currently some VoIP providers advertise the quality and low cost of their telephone service, including the capability to keep one's phone number when switching to their service. In this case they are clearly telecommunications providers who have chosen to utilize a customer's existing internet connection to carry the voice signal, and who have provided gateways to the PSTN to connect the caller with those who do not utilize VoIP services. Theirs is no less a telecommunications service than a carrier who owns switches and networks. Functionally it is the same service and should be treated equally for E911 requirements.

Summary

E911 is a critical and expected service which the Commission has supported in a number of actions. Its value has typically not been questioned, even by carriers who have consistently made the argument that complying with the Commission's rules is an undue burden. It is clear that in some cases compliance has been a burden, particularly where services were well entrenched before the requirements were defined. The Commission should first make it abundantly clear that its rules for E911 compatibility will error on the side of requiring compliance should there be any question about a service needing to provide required E911 services. This alone will encourage system developers to design in E911 capabilities that otherwise might not be considered in product design.

Some services, particularly MSS, will have a difficult time interfacing with the existing E911 systems. Those E911 systems themselves are well past their design lifetime and are being continually patched to accommodate new technologies and new demands such as number pooling and number portability. A more state-of-the-art nationwide E911 system is needed to assure that E911 service continues to be viable into the future. The Commission should sponsor and promote the design and development of a new nationwide

E911 infrastructure equal in strength to the existing, and capable of supporting new service initiatives. Implementation of advanced E911 capabilities will reduce the burden on telecommunications innovators wishing to bring new services to market while permitting increased capabilities for the day-to-day operations of E911.

Some services such as MSS, VoIP and CMRS have international implications ranging from operational standards to equipment design. The United States is not an island for the emerging services and the Commission should acknowledge that by actively promoting E911 capabilities and integration with international standards bodies.

Enhanced 911 service development to a large degree has not been coordinated as a national asset since the divestiture of AT&T. The difficulties of implementing wireless E911 should be noted as a lesson in the critical nature of nationwide coordination in support of E911 services. The Commission should make it a policy that this coordination be undertaken with appropriate recognition for participating carriers, and appropriate discouragements for carriers who do not participate.

Respectfully submitted by:

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APPENDIX A
Service Evaluation Using Applicable Criteria

~~General~~ Criteria / Service	**Real time Voice**	**911 Access Expected**	**Competes with traditional or CMRS**	**Comment**
Individual voice Services	Yes	Yes	Yes	E911 supported in all cases
Mobile Satellite Services	Yes	Possibly, based on marketing focus and service area.	Yes, Although cost dependant.	Effective integration to E911 will require modifications to the E911 networks. Call routing and connectivity issues similar to Telematics.
Multi-Line Telephone Systems	Yes	Yes, in most applications.	Yes	Application dependent for degree of E911 integration.
Resold Cellular and PCS Service	Yes	Yes	Yes	Only a change in marketing from direct carrier sales.
Pre-Paid Calling	Yes	Yes	Yes	Varies from billed serviced only in the way customers pay for the carrier's service.
Disposable Phones	Yes	Yes	Yes	Prepaid with a very low cost device but still must connect to the carrier's network.
Automated Maritime Telecommunications Systems	Yes	Yes	Yes, on smaller inland waters but possibly not off shore or on the Great Lakes.	It is defined by the customer as a telecommunications service when the marine radio is used in AMTS mode.
Emerging Services and Devices **VoIP**	Yes	Yes, when used for access that permits dialing a PSTN number.	Yes, both when used for MLTS connection and for private line equivalent service.	When used to provide what is functionally to the customer traditional voice service it frequently displaces traditional switch access.